



The Green Workforce

An Overview of Training Needs

Salt Lake
Community
College

Overview

- Combined Attention to Supply and Demand
- Continuum of Technology Expertise
- Salt Lake Community College Programs

The Green Workforce

Supply

Demand



Example

Supply – Demand – Technology

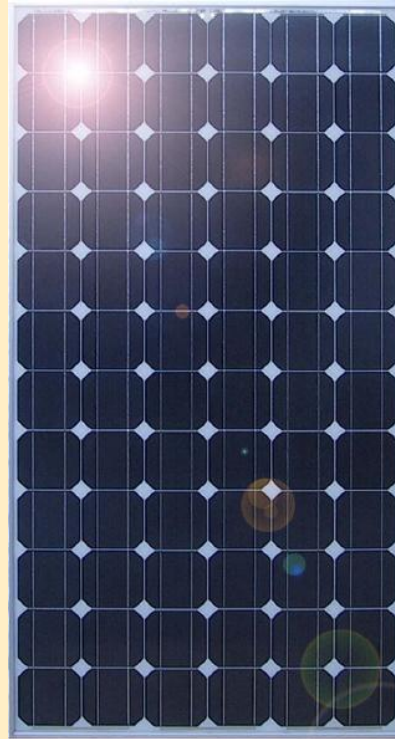
100 Light Bulb House

33 – 6 Watt LED's



Salt Lake
Community
College

200 Watt PV Panel



3 - 60 Watt Incandescent



Example

Supply – Demand – Technology

100 Light Bulb House



Watts	Bulbs/Panel	# of Panels	Cost of panels
60	3.33	30	\$24,000
15	13.33	8	\$6400
6	33	3	\$2400!

On the Supply Side ...

A Portfolio of Sources

Traditional

- Coal
- Oil
- Natural Gas
- Hydro
- Nuclear

Renewable

- Solar
- Wind
- Geothermal
- Bio-fuels

Alternative

- Oil Shale
- Tar Sands
- Fuel Cells

Any Possible Source

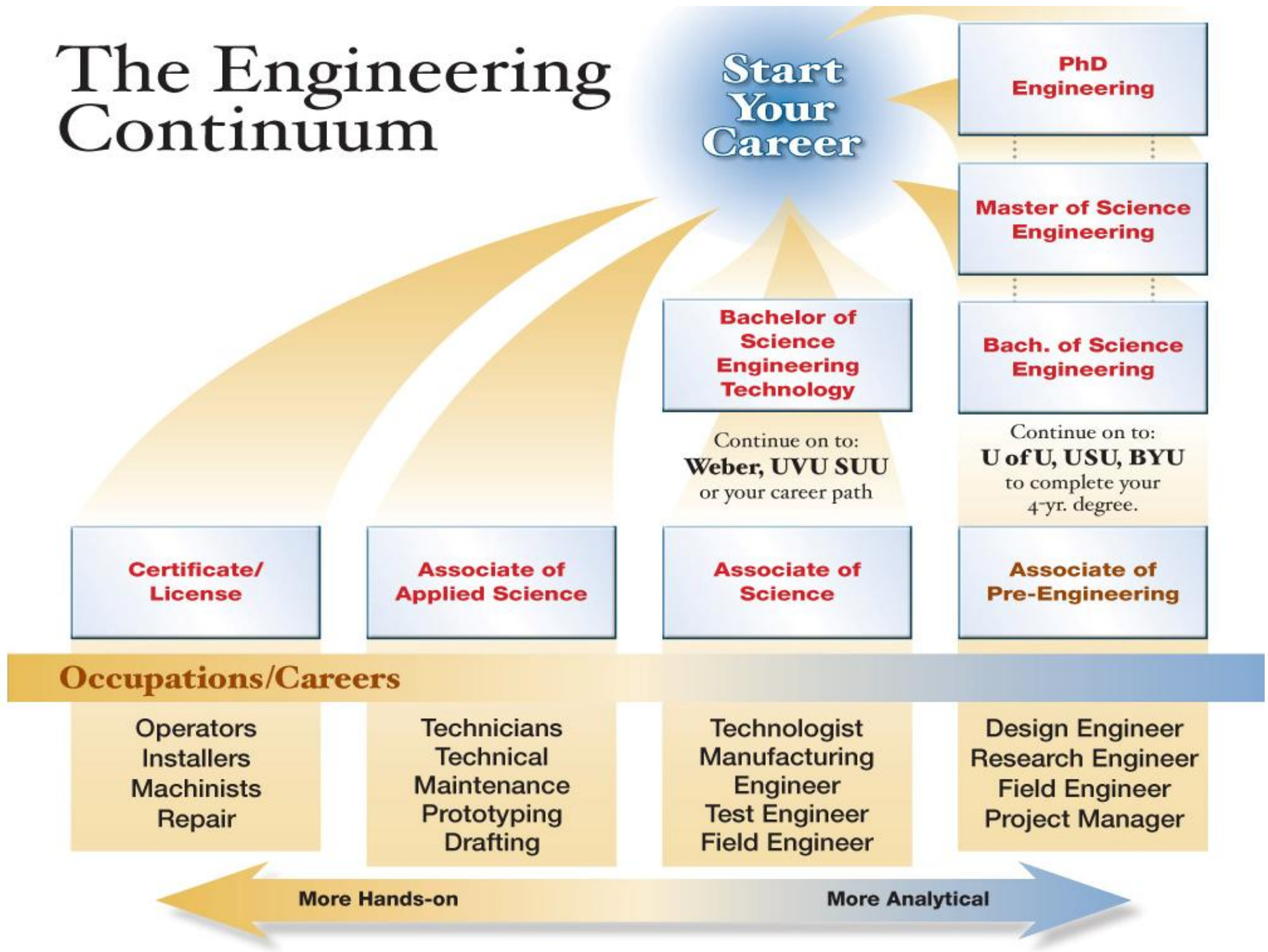
On the Demand Side...

Tough, Bottom-line Driven Efficiency

- Transportation
- Lighting
- Heating/Cooling
- Architecture
- Construction
- Manufacturing
- Feed stocks
- Materials
- Agriculture
- Processing

Anywhere Energy Is Used

The Engineering Continuum



The Engineering Continuum

Math and Science
Rigor

Start
Your
Career

**PhD
Engineering**

**Master of Science
Engineering**

**Bach. of Science
Engineering**

**Bachelor of
Science
Engineering
Technology**

Continue on to:
Weber, UVU SUU
or your career path

Continue on to:
U of U, USU, BYU
to complete your
4-yr. degree.

**Certificate/
License**

**Associate of
Applied Science**

**Associate of
Science**

**Associate of
Pre-Engineering**

Minimum Math Requirement

Algebra

College Algebra/
Trigonometry

Calculus

Differential
Equations

More Hands-on

More Analytical

The Engineering Continuum

In General With
Significant Overlap

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Job Functions

Operate
Install
Repair

Install, certify, and
maintain

Apply technologies,
develop manufac-
turing processes
and monitor quality

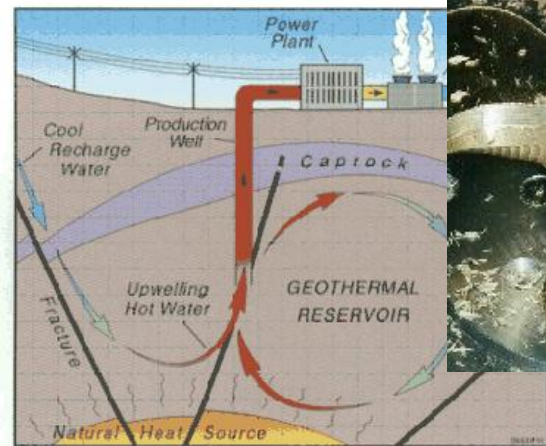
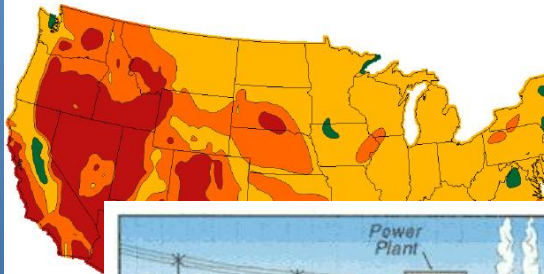
Develop new
technologies, design
new products

More Hands-on

More Analytical

Example – Deep Geothermal

Geologists



Engineering Scientists

Manufacturing Engineers,
Drafters, Machinists, Welders



Drillers, Technicians,
Civil Engineers, Erectors
Plumbers, Welders

Elec./Mech./Civil Eng.
Plumbers, Pipefitters
Electricians,
Plant Operators,
Instrumentation,
Tech. Maint.



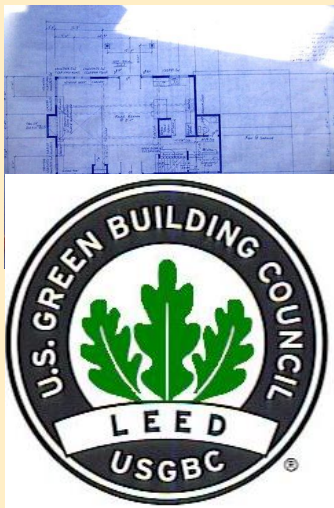
Green Workforce Opportunities

Green Jobs – new applications of established careers

- Manufacturing¹
- Machining^{1,2}
- Welding^{1,2}
- Plumbing³
- Electrical³
- Linemen
- HVAC^{2,3}
- Instrumentation¹
- Mechanical Technicians¹
- Electronic Technicians^{1,2}
- Construction^{1,3}
- Drilling
- Automotive¹
- Diesel¹
- Environmental Science¹
- Composites¹

- ¹ Existing SLCC Academic Program
- ² Existing SLCC Skill Center Program
- ³ Existing SLCC Apprenticeship Program

SLCC – New Green Training



Architecture



GIS
Remote Sensing

Building Construction
Techniques



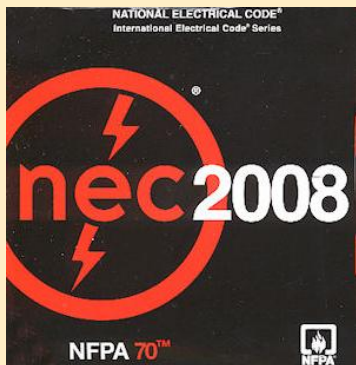
Compressed Natural
Gas Conversion

SLCC – New Green Training

Solar Electric
Installation



Commercial and Residential
Energy Management Workshops



John Wiles



Regional Testing
Center



SLCC – New Green Training



Local Utilities

2 Year AAS Degree
Building Energy Management



Across the Board

"In the time frame we have it is incredibly difficult to scale these sorts of new technologies up to the point where it becomes meaningful to the global energy system ... **There are always shortages of engineers who understand the technology, systems integrators, people to build components, etc.**"

Jeremy Carl, research fellow in Stanford University's Program on Energy and Sustainable Development Quoted March 2008 <http://blog.wired.com/wiredscience/2008/03/solar-company-s.html>

Utah Colleges and Universities

**Utah System of Higher Education
Total Enrollment Fall 3rd Week 2008**

USHE Institution	Total Headcount			Budget-related FTE		
	2007	2008	Change	2007	2008	Change
University of Utah	29,797	30,228	431	23,127	23,184	57
Utah State University	24,421	23,925	(496)	15,668	15,706	38
Weber State University	18,306	21,674	3,368	11,477	11,750	273
Southern Utah University	7,057	7,516	459	5,666	5,749	83
Snow College	3,745	3,798	53	2,289	2,369	80
Dixie State College	5,944	6,443	499	3,872	4,332	460
College of Eastern Utah	2,078	2,082	4	1,353	1,352	(1)
Utah Valley University	23,840	26,696	2,856	14,371	15,614	1,243
Salt Lake Community College	25,144	29,866	4,722	13,610	14,094	484
USHE Total	140,332	152,228	11,896	91,432	94,149	2,717*

*FTE change total rounded to the nearest one (1).